

# EMERGENCY DEPARTMENT VISITS FOR OVERDOSE BY OPIOID, UNSPECIFIED SUBSTANCE AND HEROIN AMONG VIRGINIA RESIDENTS

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April 2018

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## Background

The Virginia Department of Health (VDH) currently receives data on visits to 79<sup>¶</sup> acute care hospital emergency departments (EDs) and 17<sup>¶</sup> free-standing EDs in Virginia for purposes of public health surveillance. The purpose of this report is to characterize ED visit trends for acute unintentional overdose by opioids and heroin among Virginia residents.

Chief complaints and discharge diagnoses of ED visits are analyzed by VDH to identify and monitor issues of public health concern across Virginia. The chief complaint is a free-text field that captures the patient's primary reason for seeking medical care as interpreted by the ED registration staff. The discharge diagnosis is a coded field using standardized values defined by the International Classification of Diseases (ICD) 9<sup>th</sup> and 10<sup>th</sup> Revision code sets.

## Methodology

ED visits identified as **unintentional overdose by opioid or unspecified substance** include those with medical and non-medical use of a prescription opioid or where the substance is not specified, given evidence that the majority of fatal overdoses are opioid-related.<sup>1</sup> Visits must meet the following inclusion and exclusion criteria:

- Inclusion terms from Chief Complaint or Discharge Diagnosis: *overdose, OD, sobredosis, opioid, opiate, opium, narcotic, Narcan, naloxone, E850.1, E850.2, 965.00, 965.02, 965.09, 977.9, T40.0X1, T40.0X4, T40.2X1, T40.2X4, T40.3X1, T40.3X4, T40.4X1, T40.4X4, T40.601, T40.604, T40.691, T40.694, T50.901, T50.904*
- Exclusions terms from Chief Complaint or Discharge Diagnosis: *heroin, herion, heron, 965.01, T40.1X, suicide, alcohol overdose alone, withdrawal, detoxification, rehab, addiction, dependency, mental health or psychological evaluation, allergies, constipation, chronic pain, refill requests, and any specified non-opioid drug or medication*

ED visits identified as **unintentional overdose by heroin** must meet the following inclusion and exclusion criteria:

- Inclusion terms from Chief Complaint or Discharge Diagnosis: *heroin, herion, 965.01, E850.0, T40.1X1A, T40.1X4A*
- Exclusions terms from Chief Complaint or Discharge Diagnosis: *suicide, withdrawal, detoxification, rehab, addiction*

These criteria were revised in September 2016 and again in August 2017 to improve specificity in the identification of ED visits for unintentional drug overdose. Readers are strongly encouraged to review [syndromic surveillance data limitations](#) when interpreting this report.

A technical issue resulted in underreporting of ED visits published in the November 2017 monthly report; this issue is corrected as of the December 2017 monthly report.

ED visits for unintentional overdose by opioid or unspecified substance and heroin are presented by count or rate per 100,000 population. Rates are calculated using U.S. Census Bureau 2016 population estimates. To protect confidentiality and maintain accurate rate calculations, ED visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed in this report. Counts of 0 are included.

The geographic location is assigned based on the patient's residential zip code provided. A single zip code may span multiple city and county localities in Virginia. If a patient resides in such a zip code, the visit is assigned to the locality where the majority of the population resides. Virginia city and county populations combined to calculate a rate per 100,000 population because of zip codes spanning multiple localities can be found in [Appendix 1](#).

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<sup>¶</sup> Refer to [Appendix 2](#) for a summary of data reporting changes that should be considered when interpreting this report.

## Highlights for April 2018

Statewide ED visits for overdose by opioid or unspecified substance among Virginia residents decreased by 2% from March 2018 (735 visits) to April 2018 (721 visits) ([Figure 1A](#)). The total Year-to-Date (January to April) count of ED visits is 12% lower in 2018 as compared to 2017, and 5% lower as compared to 2016 ([Figure 1B](#)).

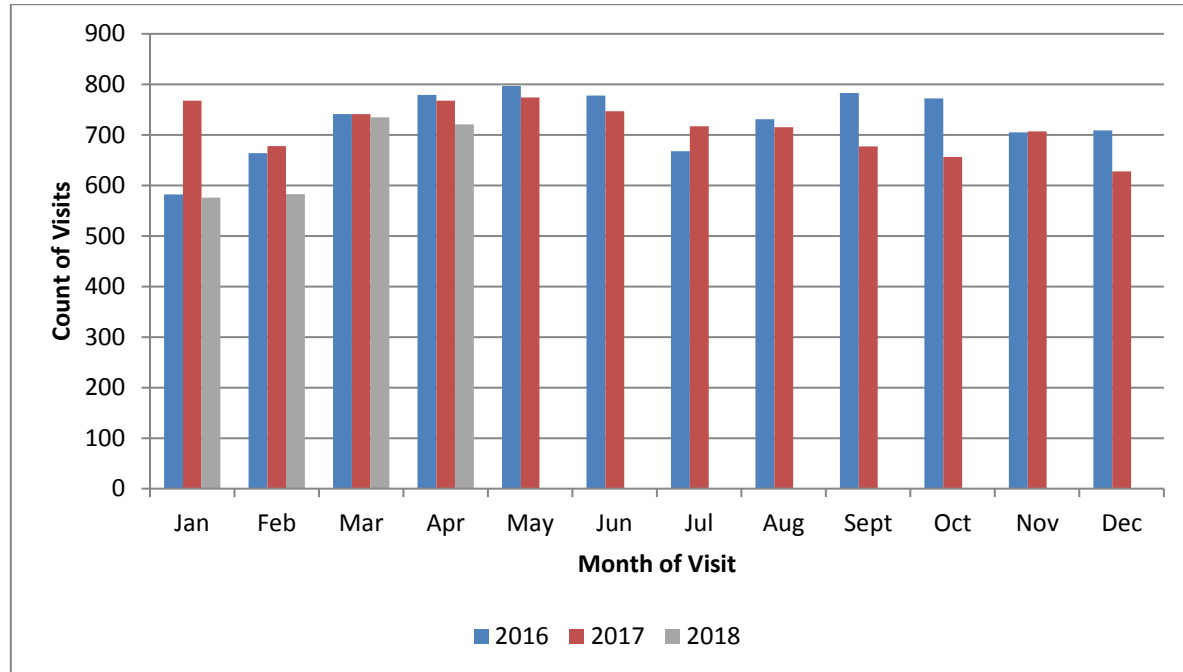
- Among the five [VDH Health Planning Regions](#), rates of visits for overdose by opioid or unspecified substance were highest in the Central and Southwest (both 13.3 per 100,000) regions. The lowest rates were in the Eastern (5.4 per 100,000) and Northern (5.7 per 100,000) regions ([Figure 1C](#)). The Year-to-Date 2018 counts for the Northwest and Southwest regions are higher than their 2017 visit counts ([Figure 1D](#)).
- By sex, there was no significant difference in the proportion of visits for overdose by opioid or unspecified substance between females and males in April 2018 ([Figure 1E](#)).
- By age group, the number of visits for overdose by opioid or unspecified substance among 25-34 year olds decreased by 7%, but remained the age group with the highest rate (14.2 per 100,000) in April ([Figure 1F](#)). The 45-54 and 65+ year old age groups saw a visit increase of 27% (9.3 per 100,000) and 11% (5.5 per 100,000), respectively, from March 2018.

Statewide ED visits for overdose by heroin among Virginia residents increased by 17% from March 2018 (107 visits) to April 2018 (125 visits) ([Figure 2A](#)). The total Year-to-Date (January to April) count of ED visits is 21% lower in 2018 compared to 2017, and 6% lower as compared to 2016 ([Figure 2B](#)).

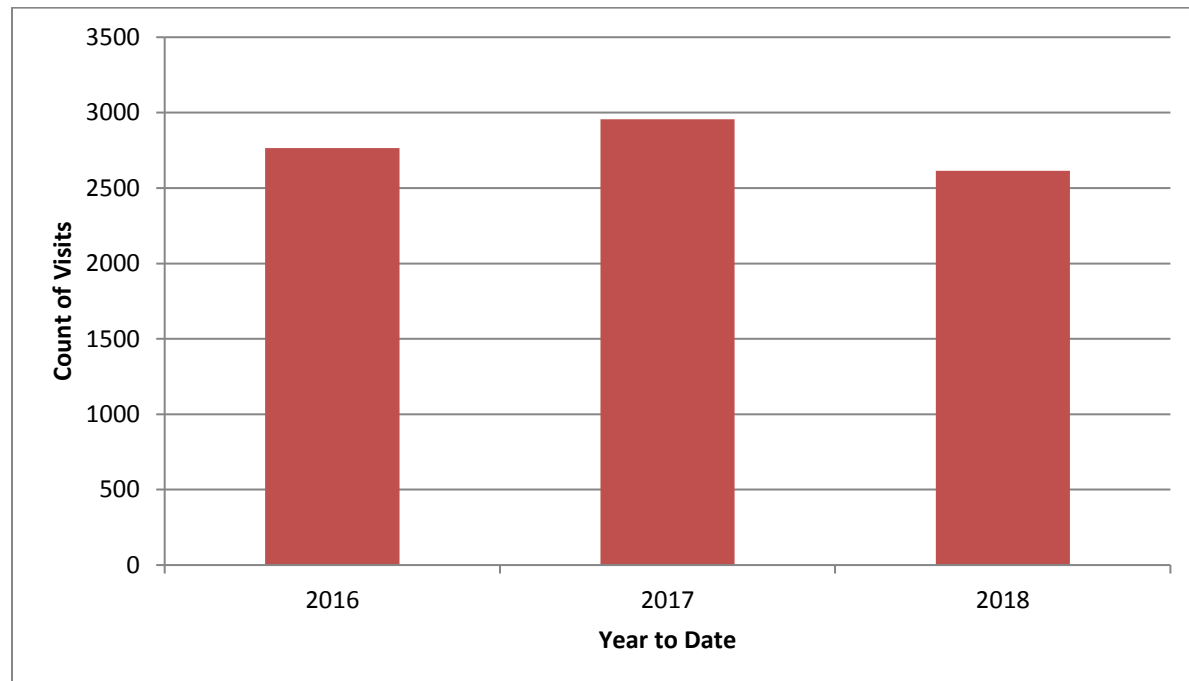
- Among the five [VDH Health Planning Regions](#), rates of visits for overdose by heroin were highest in the Eastern (2.4 per 100,000) and Central (2.2 per 100,000) regions ([Figure 2C](#)). The Year-to-Date 2018 counts for all regions, except Central region, are lower than their 2017 visit counts ([Figure 2D](#)).
- By sex, there was no significant difference in the proportion of visits for overdose by heroin between females and males in April 2018 ([Figure 2E](#)). This is a change from the prior 18 months where a significant difference between males and females was observed.
- By age group, the rate of visits for overdose by heroin was the highest in the 25-34 year old age group (4.8 per 100,000) in April 2018, and the rate for this age group has been higher than any other age groups since January 2015 when reporting by VDH began. The 45-54 and 35-44 year old age groups saw a visit increase of 142% (1.5 per 100,000) and 50% (1.9 per 100,000), respectively, from March 2018 ([Figure 2F](#)).

## Emergency Department Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents

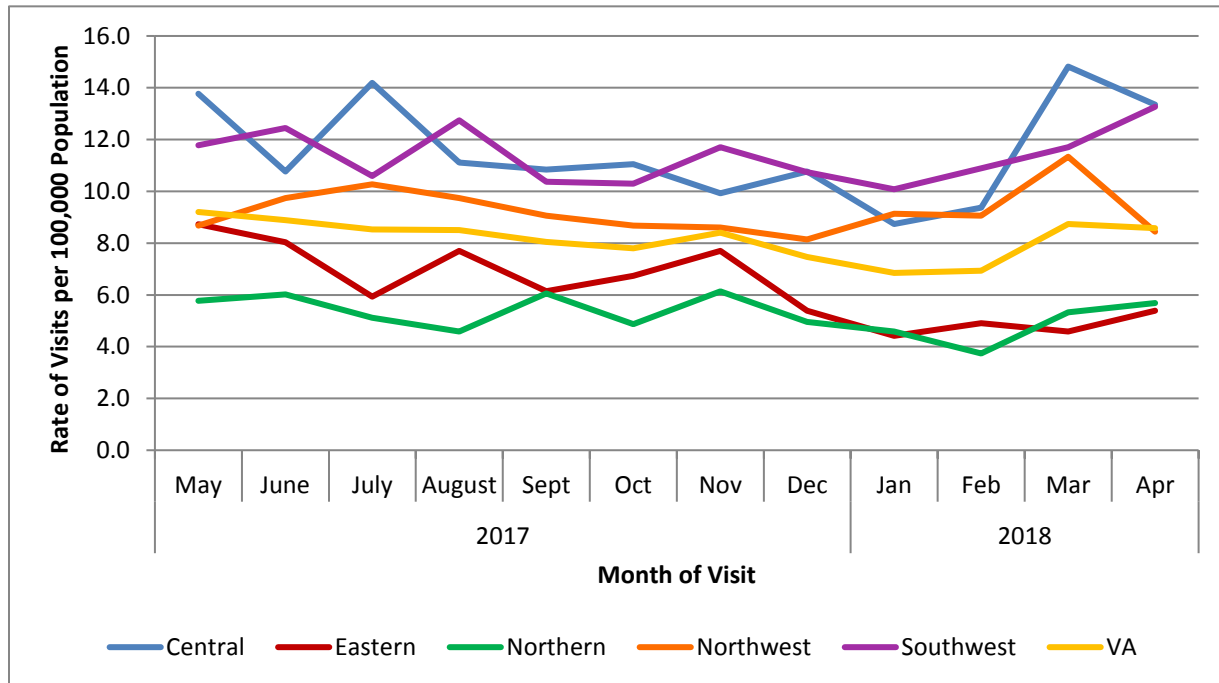
**Figure 1A.** Count of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month, 2016 - 2018.



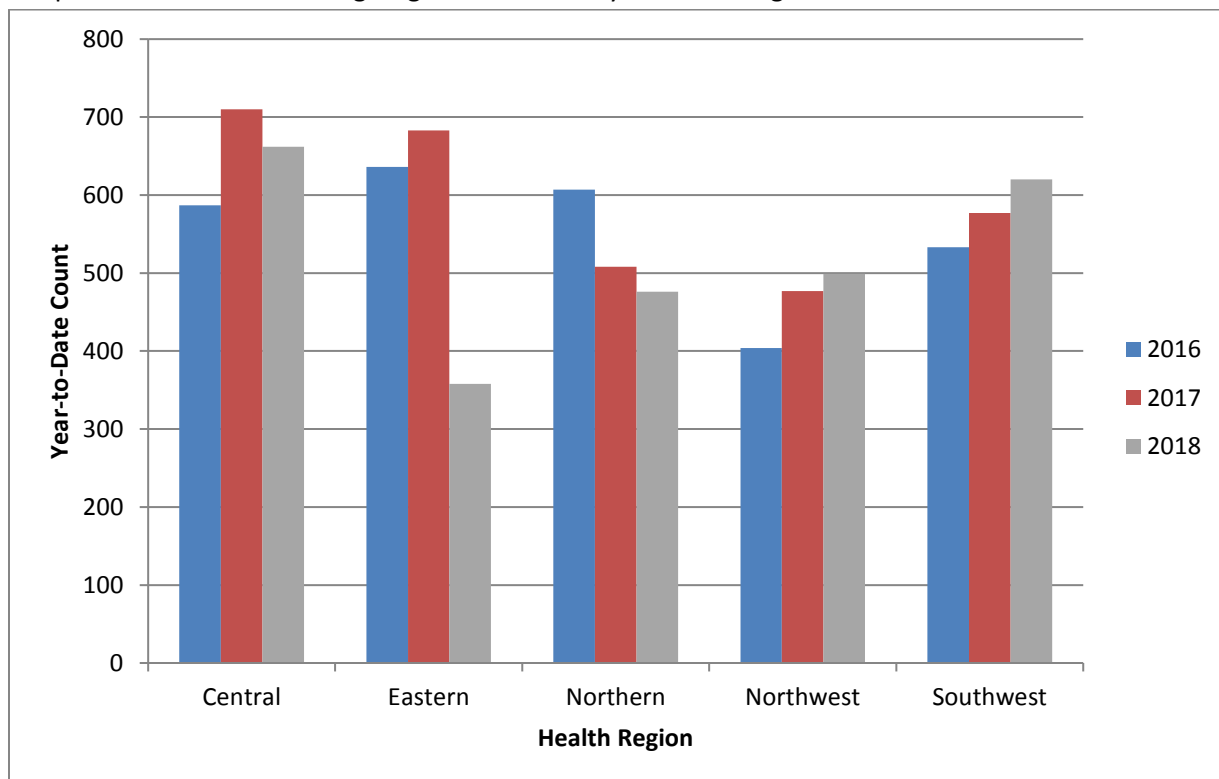
**Figure 1B.** Year-to-Date Count (January-April) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year.



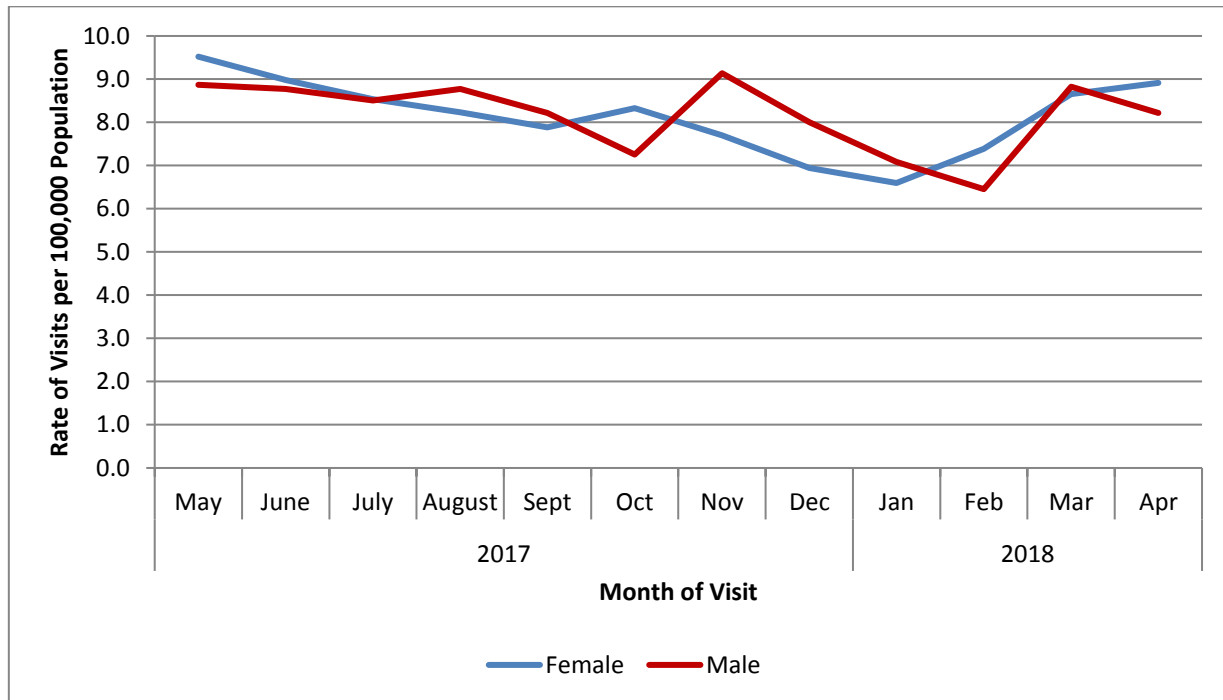
**Figure 1C.** Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health Region, Most Recent 12 Months.



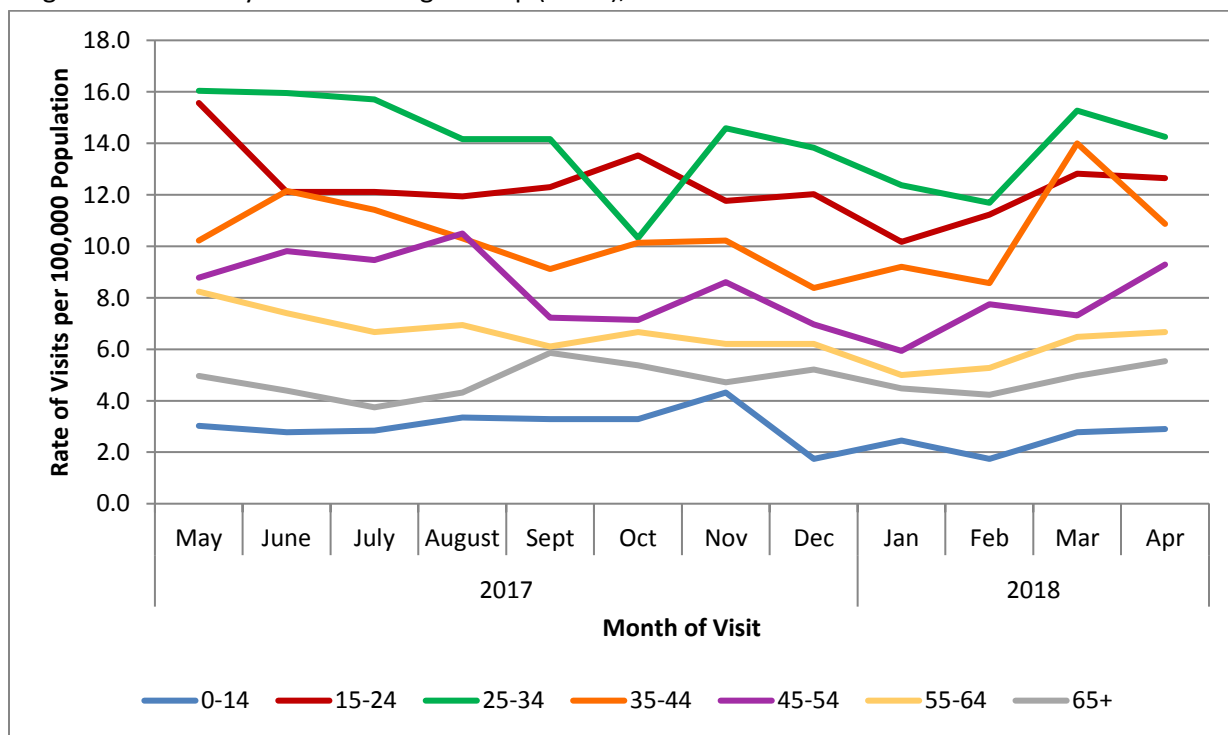
**Figure 1D.** Year-to-Date Count (January-April) of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Year and Region.



**Figure 1E.** Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Sex, Most Recent 12 Months.



**Figure 1F.** Rate of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.



**Table 1A.** Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Health District, Most Recent 5 Months<sup>†\*</sup>

Health District	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count <sup>^</sup>	Rate
Alexandria	155,810	8	5.1	9	5.8	*	*	6	3.9	10	6.4	7	4.5
Alleghany	179,082	17	9.5	14	7.8	15	8.4	20	11.2	26	14.5	18	10.3
Arlington	230,050	6	2.6	14	6.1	*	*	12	5.2	11	4.8	9	4.1
Central Shenandoah	296,650	20	6.7	29	9.8	24	8.1	25	8.4	14	4.7	22	7.6
Central Virginia	260,232	14	5.4	23	8.8	18	6.9	29	11.1	20	7.7	21	8.0
Chesapeake	237,940	19	8.0	11	4.6	16	6.7	16	6.7	17	7.1	16	6.6
Chesterfield	385,224	39	10.1	32	8.3	32	8.3	53	13.8	36	9.3	38	10.0
Chickahominy	155,278	10	6.4	5	3.2	7	4.5	8	5.2	28	18.0	12	7.5
Crater	155,665	8	5.1	9	5.8	13	8.4	28	18.0	16	10.3	15	9.5
Cumberland Plateau	106,666	17	15.9	7	6.6	12	11.3	6	5.6	18	16.9	12	11.3
Eastern Shore	45,086	0	0	0	0	0	0	*	*	*	*	0	0.9
Fairfax	1,176,830	66	5.6	47	4.0	55	4.7	65	5.5	73	6.2	61	5.2
Hampton	135,410	*	*	9	6.6	10	7.4	*	*	10	7.4	7	5.5
Henrico	326,501	53	16.2	33	10.1	35	10.7	53	16.2	53	16.2	45	13.9
Lenowisco	89,201	10	11.2	11	12.3	5	5.6	12	13.5	8	9.0	9	10.3
Lord Fairfax	232,295	34	14.6	27	11.6	25	10.8	24	10.3	27	11.6	27	11.8
Loudoun	385,945	20	5.2	22	5.7	18	4.7	27	7.0	22	5.7	22	5.6
Mount Rogers	189,178	18	9.5	12	6.3	20	10.6	17	9.0	26	13.7	19	9.8
New River	182,876	16	8.7	19	10.4	11	6.0	20	10.9	21	11.5	17	9.5
Norfolk	245,115	18	7.3	12	4.9	14	5.7	16	6.5	19	7.8	16	6.4
Peninsula	351,436	10	2.8	13	3.7	12	3.4	7	2.0	9	2.6	10	2.9
Piedmont	102,752	5	4.9	8	7.8	8	7.8	9	8.8	9	8.8	8	7.6
Pittsylvania-Danville	103,585	11	10.6	8	7.7	18	17.4	14	13.5	10	9.7	12	11.8
Portsmouth	95,252	16	16.8	10	10.5	12	12.6	9	9.4	15	15.7	12	13.0
Prince William	512,608	22	4.3	21	4.1	13	2.5	21	4.1	24	4.7	20	3.9
Rappahannock	360,830	21	5.8	26	7.2	29	8.0	35	9.7	31	8.6	28	7.9
Rappahannock-Rapidan	175,151	15	8.6	17	9.7	18	10.3	33	18.8	26	14.8	22	12.4
Richmond City	223,170	30	13.4	35	15.7	36	16.1	56	25.1	44	19.7	40	18.0
Roanoke	99,660	23	23.1	14	14.0	14	14.0	12	12.0	24	24.1	17	17.5
Southside	82,127	9	11.0	*	*	*	*	5	6.1	5	6.1	5	6.1
Thomas Jefferson	249,537	17	6.8	21	8.4	23	9.2	32	12.8	13	5.2	21	8.5
Three Rivers	140,950	*	*	0	0	*	*	*	*	6	4.3	3	2.4
Virginia Beach	452,602	22	4.9	21	4.6	20	4.4	23	5.1	14	3.1	20	4.4
West Piedmont	138,882	19	13.7	28	20.2	34	24.5	28	20.2	26	18.7	27	19.4
Western Tidewater	152,232	7	4.6	6	3.9	*	*	5	3.3	9	5.9	6	4.1
VIRGINIA TOTAL	8,411,808	628	7.5	576	6.8	583	6.9	735	8.7	721	8.6	649	7.7

<sup>†</sup> Population based on 2016 U.S. Census estimates available at [www.census.gov/popest/](http://www.census.gov/popest/)

\* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

<sup>^</sup> The 5-month average count was rounded to the nearest integer.

¶ Refer to [Appendix 2](#) for a summary of data reporting changes that should be considered when interpreting this report.

**Table 1B.** Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and City/County Locality, Most Recent 5 Months<sup>†\*</sup>

Locality	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Accomack County	32,947	0	0	0	0	0	0	*	*	*	*
Albemarle County <sup>†</sup>	153,790	*	*	8	7.2	6	6.5	12	11.7	*	*
Alleghany County <sup>†</sup>	21,113	*	*	*	*	*	*	8	37.9	6	28.4
Amelia County	12,913	*	*	0	0	0	0	0	0	*	*
Amherst County	31,633	*	*	*	*	*	*	*	*	*	*
Appomattox County	15,475	0	0	*	*	*	*	*	*	*	*
Arlington County	230,050	6	2.6	14	6.1	*	*	12	5.2	11	4.8
Augusta County <sup>†</sup>	121,247	*	*	*	*	*	*	7	10.7	*	*
Bath County	4,476	*	*	0	0	0	0	0	0	0	0
Bedford County	77,960	6	7.7	8	10.3	*	*	5	6.4	7	9.0
Bland County	6,513	0	0	*	*	0	0	0	0	*	*
Botetourt County	33,231	*	*	*	*	*	*	*	*	*	*
Brunswick County	16,243	*	*	0	0	0	0	*	*	0	0
Buchanan County	22,178	*	*	*	*	*	*	*	*	*	*
Buckingham County	17,048	0	0	*	*	*	*	*	*	*	*
Campbell County	54,952	*	*	*	*	*	*	*	*	*	*
Caroline County	30,178	6	19.9	*	*	*	*	6	19.9	5	16.6
Carroll County	29,531	*	*	*	*	*	*	*	*	6	20.3
Charles City County	7,071	*	*	*	*	0	0	*	*	*	*
Charlotte County	12,129	*	*	*	*	*	*	*	*	*	*
Chesterfield County <sup>†</sup>	356,781	35	10.1	28	8.7	30	8.7	42	13.7	32	9.8
Clarke County	14,374	*	*	*	*	0	0	*	*	0	0
Craig County	5,158	0	0	*	*	0	0	0	0	*	*
Culpeper County	50,083	6	12.0	*	*	*	*	7	14.0	*	*
Cumberland County	9,652	*	*	0	0	*	*	*	*	0	0
Dickenson County	14,968	5	33.4	*	*	*	*	0	0	0	0
Dinwiddie County	28,144	*	*	0	0	*	*	*	*	*	*
Essex County	11,123	0	0	0	0	0	0	*	*	*	*
Fairfax County <sup>†</sup>	1,176,830	66	5.6	47	4.0	55	4.7	64	5.5	72	6.2
Fauquier County	69,069	7	10.1	*	*	11	15.9	14	20.3	9	13.0
Floyd County	15,731	0	0	0	0	*	*	*	*	*	*
Fluvanna County	26,271	*	*	*	*	*	*	*	*	*	*
Franklin County	56,069	*	*	9	16.1	6	10.7	5	8.9	*	*
Frederick County <sup>†</sup>	111,937	8	16.1	5	12.5	5	8.9	*	*	5	11.6
Giles County	16,857	*	*	*	*	*	*	*	*	*	*
Gloucester County	37,214	0	0	0	0	0	0	0	0	*	*
Goochland County	22,668	*	*	0	0	*	*	*	*	6	26.5



Locality	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Grayson County <sup>†</sup>	21,882	*	*	*	*	0	0	*	*	*	*
Greene County	19,371	*	*	*	*	*	*	*	*	*	*
Greensville County <sup>†</sup>	17,011	*	*	*	*	*	*	*	*	0	0
Halifax County	34,992	*	*	0	0	*	*	*	*	*	*
Hanover County	104,392	5	4.8	*	*	6	5.7	5	4.8	19	18.2
Henrico County	326,501	53	16.2	33	10.1	35	10.7	53	16.2	53	16.2
Henry County <sup>†</sup>	64,890	17	27.7	16	24.7	23	35.4	18	27.7	21	32.4
Highland County	2,216	0	0	0	0	0	0	0	0	0	0
Isle of Wight County	36,596	*	*	*	*	0	0	*	*	0	0
James City County	74,404	0	0	5	6.7	*	*	5	6.7	6	8.1
King and Queen County	7,159	*	*	0	0	0	0	0	0	0	0
King George County	25,984	*	*	*	*	*	*	*	*	5	19.2
King William County	16,334	*	*	0	0	0	0	0	0	0	0
Lancaster County	10,972	0	0	0	0	*	*	*	*	0	0
Lee County	24,179	*	*	*	*	0	0	*	*	*	*
Loudoun County	385,945	20	5.2	22	5.7	18	4.7	27	7.0	22	5.7
Louisa County	35,236	6	17.0	*	*	7	19.9	8	22.7	*	*
Lunenburg County	12,273	*	*	*	*	0	0	*	*	0	0
Madison County	13,078	0	0	0	0	*	*	*	*	0	0
Mathews County	8,782	0	0	0	0	0	0	0	0	0	0
Mecklenburg County	30,892	*	*	*	*	*	*	*	*	*	*
Middlesex County	10,778	0	0	0	0	0	0	0	0	*	*
Montgomery County <sup>†</sup>	116,085	6	6.9	7	9.5	*	*	7	8.6	11	10.3
Nelson County	14,869	0	0	*	*	0	0	*	*	*	*
New Kent County	21,147	0	0	*	*	0	0	0	0	*	*
Northampton County	12,139	0	0	0	0	0	0	0	0	0	0
Northumberland County	12,222	0	0	0	0	*	*	0	0	*	*
Nottoway County	15,595	0	0	0	0	*	*	*	*	*	*
Orange County	35,533	*	*	10	28.1	*	*	10	28.1	13	36.6
Page County	23,654	*	*	*	*	*	*	0	0	5	21.1
Patrick County	17,923	0	0	*	*	5	27.9	5	27.9	*	*
Pittsylvania County <sup>†</sup>	103,585	*	*	*	*	5	17.4	*	*	*	*
Powhatan County	28,443	*	*	*	*	*	*	*	*	*	*
Prince Edward County	23,142	0	0	*	*	*	*	0	0	*	*
Prince George County	92,462	0	0	*	*	0	0	*	*	*	*
Prince William County <sup>†</sup>	512,608	19	4.3	18	4.1	12	2.5	20	4.1	23	4.7
Pulaski County	34,203	*	*	7	20.5	*	*	6	17.5	6	17.5
Rappahannock County	7,388	0	0	*	*	0	0	0	0	*	*
Richmond County	8,774	0	0	0	0	0	0	0	0	0	0
Roanoke County <sup>†</sup>	219,240	6	16.9	*	*	6	10.9	8	10.0	11	18.7

Locality	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Rockbridge County <sup>†</sup>	35,889	*	*	*	*	*	*	*	*	*	*
Rockingham County <sup>†</sup>	132,822	*	*	6	6.0	8	6.8	6	6.8	*	*
Russell County	27,370	*	*	*	*	*	*	*	*	5	18.3
Scott County	21,930	0	0	*	*	0	0	*	*	0	0
Shenandoah County	43,175	7	16.2	*	*	7	16.2	5	11.6	*	*
Smyth County	31,062	*	*	*	*	8	25.8	*	*	5	16.1
Southampton County <sup>†</sup>	26,363	*	*	0	0	0	0	0	0	*	*
Spotsylvania County	132,010	8	6.1	11	8.3	12	9.1	12	9.1	6	4.5
Stafford County	144,361	5	3.5	10	6.9	6	4.2	10	6.9	12	8.3
Surry County	6,544	0	0	0	0	0	0	0	0	0	0
Sussex County	11,504	0	0	0	0	0	0	0	0	*	*
Tazewell County	42,150	5	11.9	*	*	5	11.9	*	*	11	26.1
Warren County	39,155	*	*	6	15.3	5	12.8	6	15.3	7	17.9
Washington County <sup>†</sup>	71,174	0	0	*	*	5	8.4	6	8.4	*	*
Westmoreland County	17,592	*	*	0	0	*	*	*	*	*	*
Wise County <sup>†</sup>	43,092	5	16.2	6	13.9	*	*	6	16.2	*	*
Wythe County	29,016	*	*	0	0	*	*	*	*	5	17.2
York County	67,976	*	*	*	*	*	*	0	0	*	*
Alexandria City	155,810	8	5.1	9	5.8	*	*	6	3.9	10	6.4
Bristol City <sup>†</sup>	71,174	*	*	0	0	*	*	0	0	0	0
Buena Vista City <sup>†</sup>	35,889	*	*	*	*	*	*	*	*	*	*
Charlottesville City <sup>†</sup>	153,790	*	*	*	*	*	*	6	11.7	*	*
Chesapeake City	237,940	19	8.0	11	4.6	16	6.7	16	6.7	17	7.1
Colonial Heights City <sup>†</sup>	356,781	*	*	*	*	*	*	7	13.7	*	*
Covington City <sup>†</sup>	21,113	0	0	0	0	0	0	0	0	0	0
Danville City <sup>†</sup>	103,585	10	10.6	5	7.7	13	17.4	10	13.5	7	9.7
Emporia City <sup>†</sup>	17,011	0	0	0	0	0	0	0	0	0	0
Fairfax City <sup>†</sup>	1,176,830	0	0	0	0	0	0	0	0	0	0
Falls Church City <sup>†</sup>	1,176,830	0	0	0	0	0	0	*	*	*	*
Franklin City <sup>†</sup>	26,363	*	*	*	*	*	*	*	*	*	*
Fredericksburg City	28,297	*	*	*	*	6	21.2	*	*	*	*
Galax City <sup>†</sup>	21,882	9	45.7	*	*	*	*	*	*	*	*
Hampton City	135,410	*	*	9	6.6	10	7.4	*	*	10	7.4
Harrisonburg City <sup>†</sup>	132,822	*	*	*	*	*	*	*	*	*	*
Hopewell City <sup>†</sup>	92,462	*	*	*	*	7	11.9	13	23.8	*	*
Lexington City <sup>†</sup>	35,889	0	0	0	0	0	0	0	0	0	0
Lynchburg City	80,212	5	6.2	9	11.2	9	11.2	15	18.7	7	8.7
Manassas City <sup>†</sup>	512,608	*	*	*	*	*	*	*	*	*	*
Manassas Park City <sup>†</sup>	512,608	0	0	0	0	0	0	0	0	0	0
Martinsville City <sup>†</sup>	64,890	*	*	0	0	0	0	0	0	0	0

Locality	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Newport News City	181,825	7	3.8	5	2.7	5	2.7	*	*	*	*
Norfolk City	245,115	18	7.3	12	4.9	14	5.7	16	6.5	19	7.8
Norton City <sup>†</sup>	43,092	*	*	0	0	*	*	*	*	*	*
Petersburg City <sup>†</sup>	92,462	*	*	*	*	*	*	7	23.8	6	14.1
Poquoson City	12,017	*	*	0	0	0	0	0	0	*	*
Portsmouth City	95,252	16	16.8	10	10.5	12	12.6	9	9.4	15	15.7
Radford City <sup>†</sup>	116,085	*	*	*	*	*	*	*	*	*	*
Richmond City	223,170	30	13.4	35	15.7	36	16.1	56	25.1	44	19.7
Roanoke City <sup>†</sup>	219,240	23	16.9	14	9.1	14	10.9	12	10.0	24	18.7
Salem City <sup>†</sup>	219,240	8	16.9	*	*	*	*	*	*	6	18.7
Staunton City <sup>†</sup>	121,247	*	*	9	13.2	5	8.2	0	0	*	*
Suffolk City	89,273	*	*	*	*	*	*	*	*	6	6.7
Virginia Beach City	452,602	22	4.9	21	4.6	20	4.4	23	5.1	14	3.1
Waynesboro City <sup>†</sup>	121,247	*	*	*	*	*	*	6	10.7	0	0
Williamsburg City	15,214	0	0	0	0	0	0	0	0	0	0
Winchester City <sup>†</sup>	111,937	10	16.1	9	12.5	5	8.9	9	10.7	8	11.6
VIRGINIA TOTAL	8,411,808	628	7.5	576	6.8	583	6.9	735	8.7	721	8.6

<sup>†</sup> Population based on 2016 U.S. Census estimates available at [www.census.gov/popest/](http://www.census.gov/popest/)

<sup>‡</sup> The rate per 100,000 population for each locality within a combined group is based on the aggregated total population of the combined group. Refer to [Appendix 1](#) for the list of localities that are combined.

\* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

¶ Refer to [Appendix 2](#) for a summary of data reporting changes that should be considered when interpreting this report.

**Table 1C.** Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Opioid or Unspecified Substance among Virginia Residents by Month and Virginia State Police Division, Most Recent 5 Months<sup>†\*§</sup>

VSP Division	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,414,861	157	11.1	120	8.5	139	9.8	219	15.5	197	13.9
Division 2	844,936	69	8.2	74	8.8	76	9.0	91	10.8	77	9.1
Division 3	657,948	38	5.8	60	9.1	50	7.6	72	10.9	38	5.8
Division 4	436,105	53	12.2	38	8.7	40	9.2	44	10.1	59	13.5
Division 5	1,823,149	98	5.4	83	4.6	89	4.9	85	4.7	98	5.4
Division 6	773,566	91	11.8	88	11.4	97	12.5	93	12.0	112	14.5
Division 7	2,461,243	122	5.0	113	4.6	92	3.7	131	5.3	140	5.7
VIRGINIA TOTAL	8,411,808	628	7.5	576	6.8	583	6.9	735	8.7	721	8.6

† Population based on 2016 U.S. Census estimates available at [www.census.gov/popest/](http://www.census.gov/popest/)

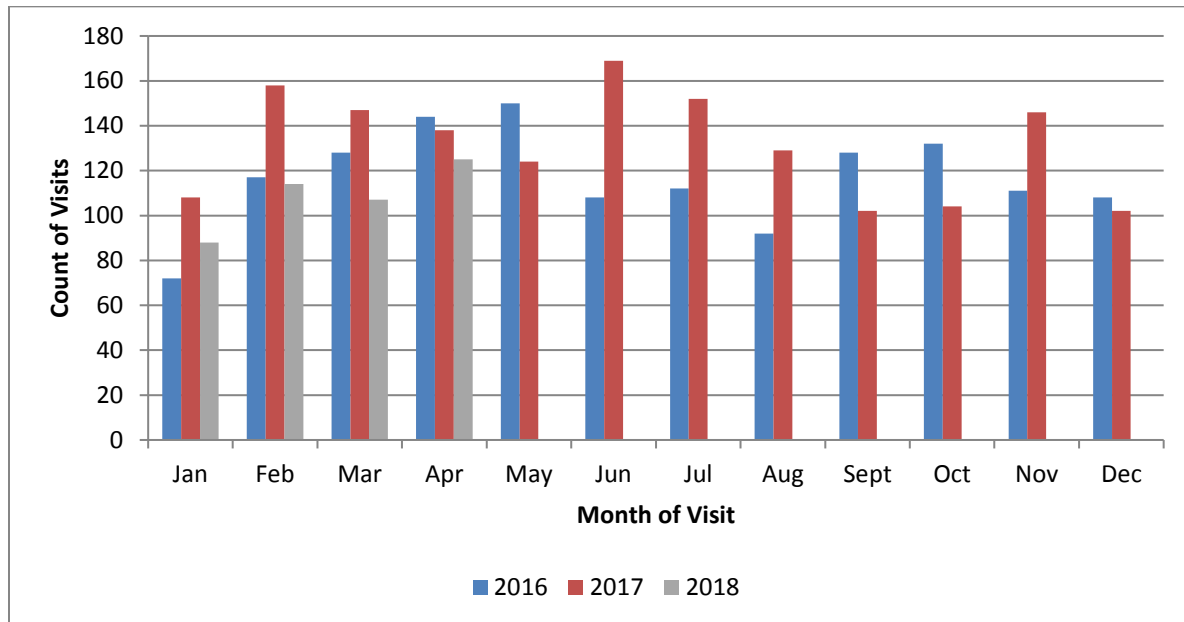
\* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

§ Virginia State Police Divisions available at [http://www.vsp.state.va.us/Office\\_Locations.shtm](http://www.vsp.state.va.us/Office_Locations.shtm)

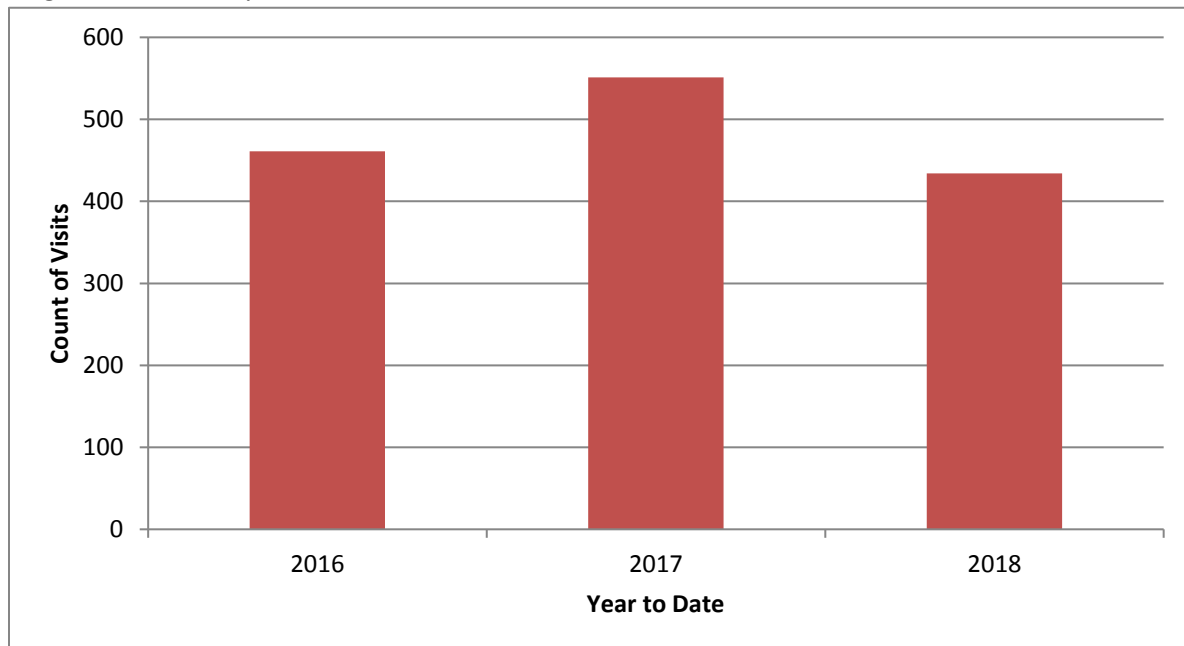
¶ Refer to [Appendix 2](#) for a summary of data reporting changes that should be considered when interpreting this report.

## Emergency Department Visits for Unintentional Overdose by Heroin among Virginia Residents

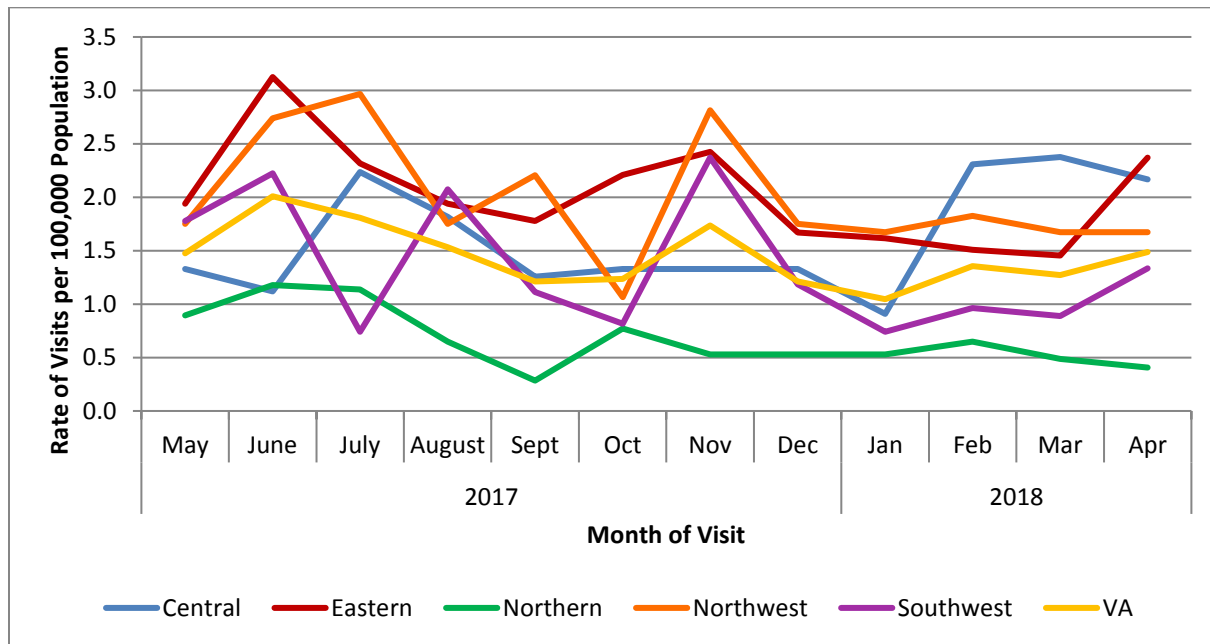
**Figure 2A.** Count of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month, 2016 – 2018.



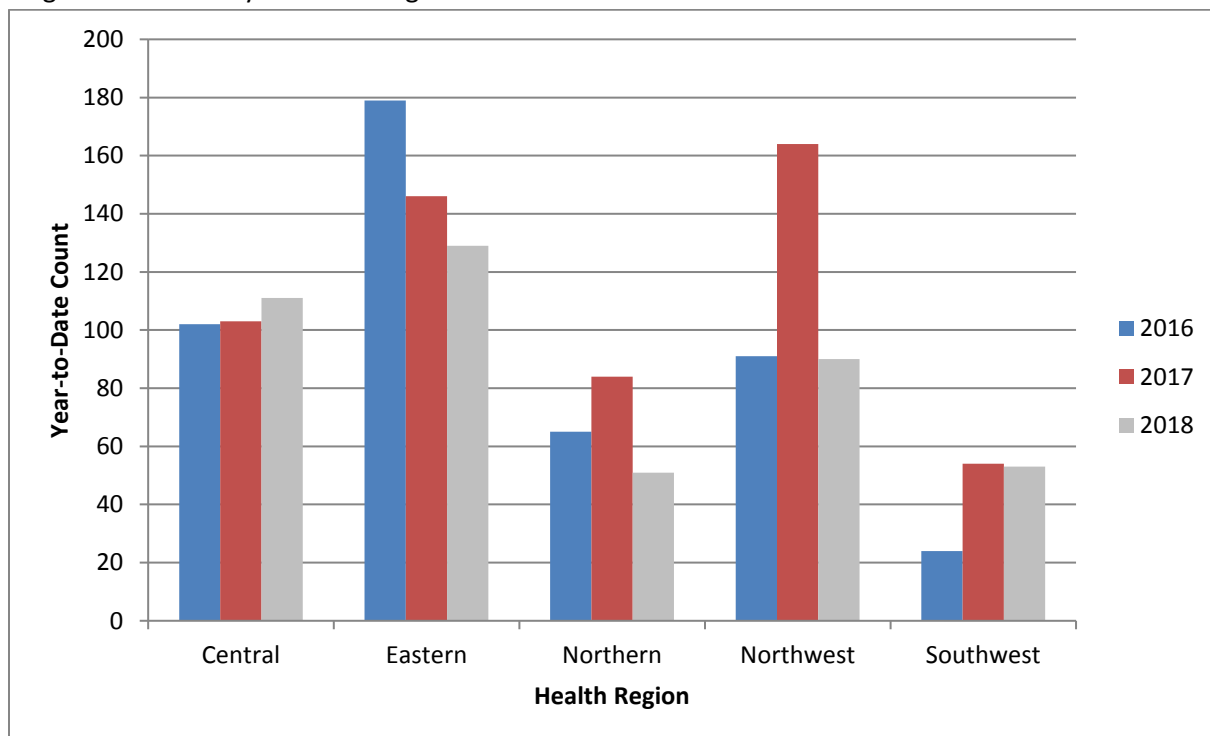
**Figure 2B.** Year-to-Date Count (January-April) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year.



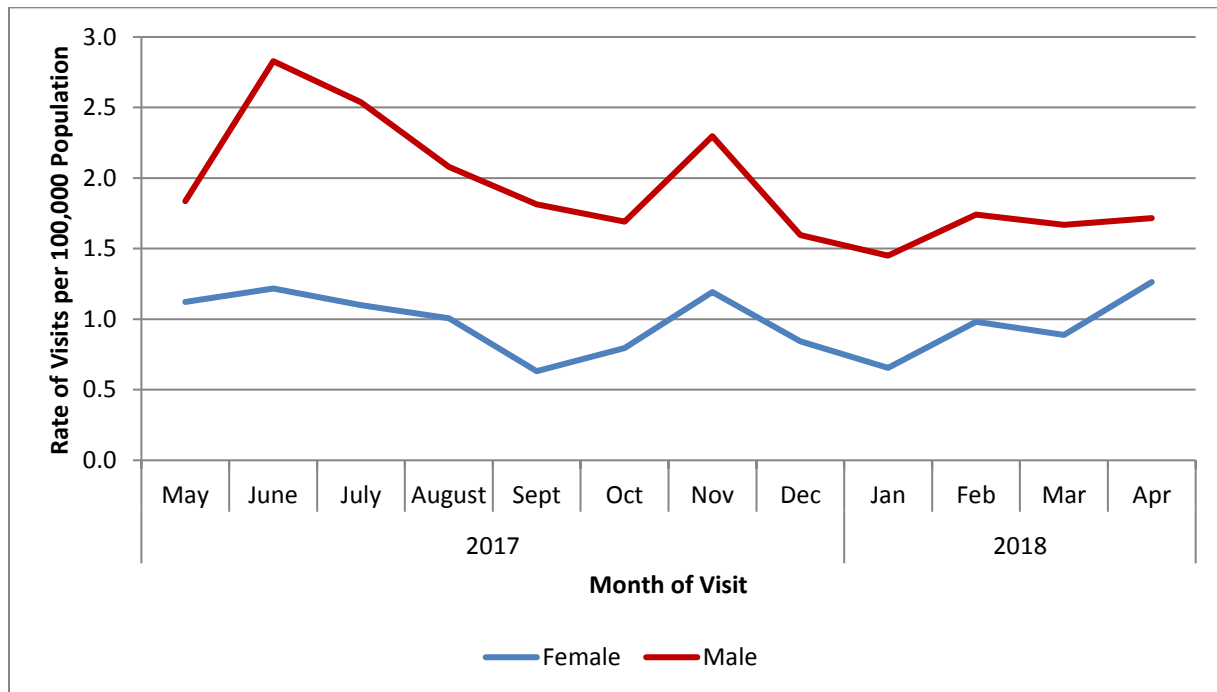
**Figure 2C.** Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health Region, Most Recent 12 Months.



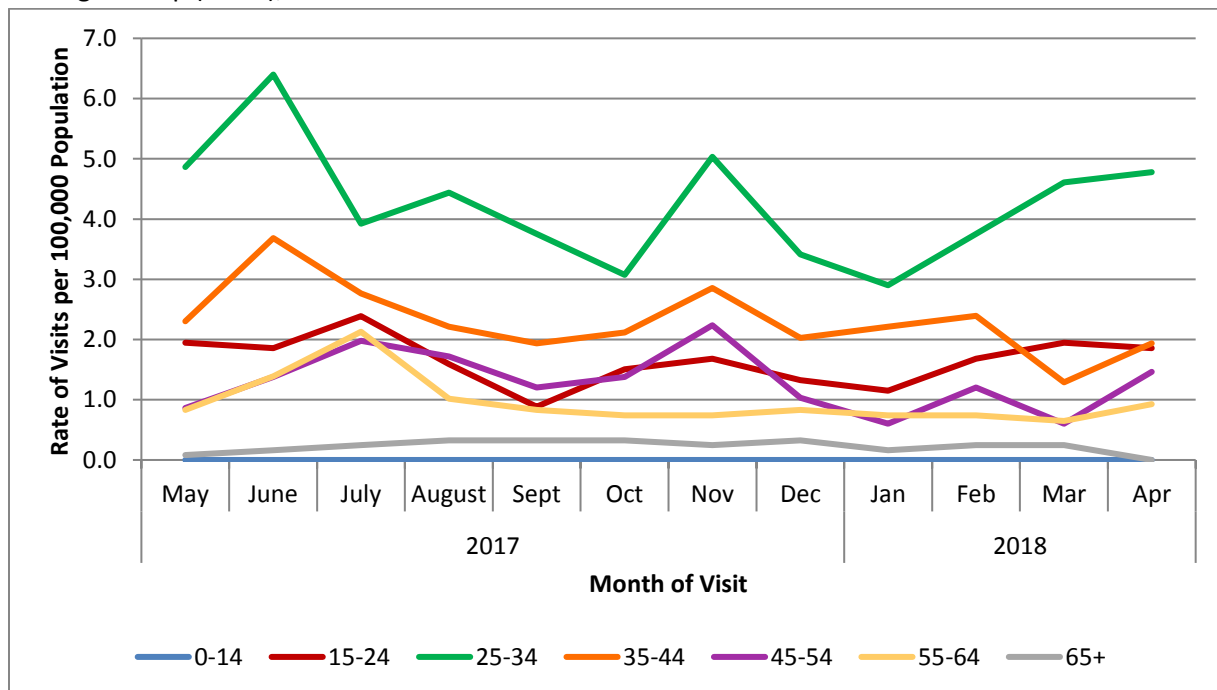
**Figure 2D.** Year-to-Date Count (January-April) of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Year and Region.



**Figure 2E.** Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Sex, Most Recent 12 Months.



**Figure 2F.** Rate of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Age Group (Years), Most Recent 12 Months.



**Table 2A.** Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Health District, Most Recent 5 Months<sup>†\*</sup>

Health District	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018		5-month Average	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count <sup>^</sup>	Rate
Alexandria	155,810	*	*	0	0	0	0	*	*	*	*	1	0.4
Alleghany	179,082	*	*	*	*	*	*	*	*	5	2.8	5	2.9
Arlington	230,050	0	0	5	2.2	*	*	*	*	0	0	2	1.0
Central Shenandoah	296,650	0	0	*	*	*	*	*	*	*	*	1	0.4
Central Virginia	260,232	*	*	*	*	0	0	0	0	*	*	1	0.3
Chesapeake	237,940	*	*	11	4.6	7	2.9	6	2.5	11	4.6	6	2.6
Chesterfield	385,224	9	2.3	5	1.3	7	1.8	5	1.3	5	1.3	6	1.5
Chickahominy	155,278	*	*	*	*	*	*	*	*	*	*	2	1.4
Crater	155,665	0	0	0	0	11	7.1	5	3.2	6	3.9	3	2.1
Cumberland Plateau	106,666	0	0	0	0	0	0	0	0	0	0	0	0.0
Eastern Shore	45,086	0	0	0	0	0	0	0	0	0	0	0	0.0
Fairfax	1,176,830	7	0.6	5	0.4	5	0.4	*	*	8	0.7	5	0.4
Hampton	135,410	*	*	0	0	*	*	*	*	*	*	3	2.1
Henrico	326,501	*	*	*	*	7	2.1	8	2.5	12	3.7	6	1.8
Lenowisco	89,201	0	0	0	0	0	0	0	0	0	0	0	0.0
Lord Fairfax	232,295	6	2.6	9	3.9	7	3.0	*	*	5	2.2	6	2.8
Loudoun	385,945	*	*	0	0	*	*	*	*	*	*	1	0.3
Mount Rogers	189,178	0	0	0	0	0	0	0	0	0	0	0	0.0
New River	182,876	*	*	0	0	0	0	*	*	*	*	1	0.3
Norfolk	245,115	7	2.9	8	3.3	6	2.4	5	2.0	11	4.5	7	2.9
Peninsula	351,436	0	0	0	0	*	*	*	*	0	0	2	0.5
Piedmont	102,752	0	0	*	*	0	0	*	*	0	0	1	1.2
Pittsylvania-Danville	103,585	0	0	0	0	0	0	0	0	0	0	0	0.0
Portsmouth	95,252	10	10.5	6	6.3	5	5.2	*	*	*	*	7	6.9
Prince William	512,608	*	*	*	*	6	1.2	5	1.0	0	0	4	0.9
Rappahannock	360,830	6	1.7	5	1.4	8	2.2	5	1.4	8	2.2	8	2.2
Rappahannock-Rapidan	175,151	8	4.6	5	2.9	*	*	8	4.6	*	*	6	3.5
Richmond City	223,170	*	*	*	*	6	2.7	9	4.0	6	2.7	5	2.2
Roanoke	99,660	8	8.0	*	*	7	7.0	8	8.0	8	8.0	8	8.0
Southside	82,127	0	0	0	0	*	*	*	*	*	*	0	0.5
Thomas Jefferson	249,537	*	*	*	*	*	*	*	*	*	*	4	1.5
Three Rivers	140,950	0	0	*	*	*	*	*	*	*	*	2	1.1
Virginia Beach	452,602	5	1.1	*	*	*	*	*	*	10	2.2	5	1.0
West Piedmont	138,882	*	*	*	*	*	*	0	0	*	*	2	1.4
Western Tidewater	152,232	*	*	*	*	*	*	*	*	*	*	2	1.1
VIRGINIA TOTAL	8,411,808	102	1.2	88	1.0	114	1.4	107	1.3	125	1.5	111	1.3

<sup>†</sup> Population based on 2016 U.S. Census estimates available at [www.census.gov/popest/](http://www.census.gov/popest/)

\* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

<sup>^</sup> The 5-month average count was rounded to the nearest integer.

¶ Refer to [Appendix 2](#) for a summary of data reporting changes that should be considered when interpreting this report.



**Table 2B.** Count and Rate per 100,000 Population of ED Visits for Unintentional Overdose by Heroin among Virginia Residents by Month and Virginia State Police Division, Most Recent 5 Months<sup>†\*§</sup>

VSP Division	2016 Population Estimate	Dec 2017		Jan 2018		Feb 2018		Mar 2018		Apr 2018	
		Count	Rate	Count	Rate	Count	Rate	Count	Rate	Count	Rate
Division 1	1,414,861	19	1.3	13	0.9	33	2.3	36	2.5	31	2.2
Division 2	844,936	20	2.4	19	2.2	19	2.2	16	1.9	17	2.0
Division 3	657,948	*	*	*	*	6	0.9	5	0.8	*	*
Division 4	436,105	0	0	0	0	0	0	0	0	*	*
Division 5	1,823,149	31	1.7	29	1.6	27	1.5	26	1.4	45	2.5
Division 6	773,566	16	2.1	10	1.3	13	1.7	12	1.6	17	2.2
Division 7	2,461,243	13	0.5	13	0.5	16	0.7	12	0.5	10	0.4
VIRGINIA TOTAL	8,411,808	102	1.2	88	1.0	114	1.4	107	1.3	125	1.5

† Population based on 2016 U.S. Census estimates available at [www.census.gov/popest/](http://www.census.gov/popest/)

\* Visit counts of 1 to 4 and rates with numerators of 1 to 4 are suppressed to maintain confidentiality and accurate rate calculations.

§ Virginia State Police Divisions available at [http://www.vsp.state.va.us/Office\\_Locations.shtm](http://www.vsp.state.va.us/Office_Locations.shtm)

¶ Refer to [Appendix 2](#) for a summary of data reporting changes that should be considered when interpreting this report.

## Appendix 1

### Virginia Localities Combined for the Purposes of Rate Calculation per 100,000 Population

- Alleghany County and Covington City
- Albemarle County and Charlottesville City
- Augusta County, Staunton City, and Waynesboro City
- Chesterfield County and Colonial Heights City
- Frederick County and Winchester City
- Fairfax County, Fairfax City, and Falls Church City
- Grayson County and Galax City
- Greensville County and Emporia City
- Henry County and Martinsville City
- Montgomery County and Radford City
- Pittsylvania County and Danville City
- Prince George County, Hopewell City, and Petersburg City
- Prince William County, Manassas City, and Manassas Park City
- Roanoke County, Roanoke City, and Salem City
- Rockingham County and Harrisonburg City
- Rockbridge County, Buena Vista City, and Lexington City
- Southampton County and Franklin City
- Washington County and Bristol City
- Wise County and Norton City

## Appendix 2

### Summary of Data Reporting Changes by Emergency Departments in Virginia

The volume and quality of data reported by emergency departments to the Virginia Department of Health for syndromic surveillance affect the volume and quality of data in this report. In general, volume and quality have improved over time as additional EDs report to the Virginia Department of Health. This general increase in data volume should be taken into consideration when interpreting trends in visit counts and rates over time. Occasionally, EDs stop reporting data, which can lead to a decrease in data volume and a lowering of trends. Other factors that can affect the data are changes in the quality reported by EDs, which can improve or reduce the accuracy of the data.

Please consider the following data reporting changes when interpreting the contents of *Emergency Department Visits for Overdose by Opioid, Unspecified Substance and Heroin among Virginia Residents* reports.

Month	Health Region	Description
June 2017	Eastern	A single healthcare system representing five acute care hospital EDs became unable to report data, reducing the quantity and representativeness of the data from this region.
June 2017	Northwest	One acute care hospital ED improved its data quality, supporting more accurate capture of overdose visit data.
February 2018	Central	One additional acute care hospital ED began reporting data to VDH, increasing the quantity and representativeness of data from this region.
March 2018	Central	Four additional free-standing EDs began reporting data to VDH, increasing the quantity and representativeness of data from this region.
April 2018	Southwest	Two additional acute care hospital EDs began reporting data to VDH, increasing the quantity and representativeness of data from this region.
April 2018	Northern	One acute care hospital ED became unable to report data, reducing the quantity and representativeness of the data from this region.

